The fight to save Earth's 'shield'

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Byline: by David Israelson Toronto Star

Body

The biggest fix-it effort in history could emerge from a three-day meeting beginning Monday in Montreal - a 40-country deal to save the ozone layer that surrounds the Earth and protects us from cancer-causing rays.

But as the diplomatic talks draw to a climax, there are concerns that a different deal may emerge - one to protect the industries whose practices are believed to be poking huge holes in the ozone.

Certainly, some type of agreement on ozone will be signed at the meeting, which is to be capped by a high-level ceremony on Wednesday. The gathering is sponsored by the United Nations and involves the United States, the Soviets, most of Europe and many developing countries.

First draft

"Failure to agree . . . would be a blow to the hopes of people throughout the world that their governments can and will do something about serious global problems," says Mostafa Tolba, head of the United Nations Environment Program.

But exactly what will emerge is unclear. The first draft of the international "ozone control protocol" was being hammered out only yesterday, and virtually everyone involved expects changes before Wednesday.

According to Environment Canada, the aim is to take "the first concrete step toward global protection of the ozone layer" - a delicate band of gases 10 to 50 kilometres above the ground, which filters most of the sun's harmful ultraviolet rays.

If a strong deal comes off, it will be something of a diplomatic coup for Canada, which has played a significant role during years of behind-the-scenes negotiations. One deadlock several years ago was broken at a key Toronto meeting involving the United States and several European countries as well as federal officials.

Remaining hurdles

However, hurdles still remain. One Canadian delegate to the Montreal meeting, environmental activist Julia Langer, is concerned that the talks are really not about the ozone layer at all, but are instead now dealing with ways to shelter the market for the huge chemical firms that make the substances doing the damage.

The chemicals, called chloroflouroucarbons (CFCs) are in wide use in refrigerators, air conditioners, Styrofoam cups, egg cartons and as solvents to clean computer chips. A deal probably could be hammered out to limit production of CFCs to current levels. But in 1985 alone, an estimated 650,000 tonnes of just two varieties were released into the air - and there are more than 20 types.

And countries are reluctant to enter any deal that will limit future production severely. In addition, the countries that produce the materials don't want to lose the markets they have in the nations that don't.

"The countries know that production is going to have to drop," says Langer, who heads the Ottawa-based Friends of the Earth activist group.

"But they don't want it to drop so much that they can't trade.

"Things are drifting towards an agreement that will not be an environmental protocol, but a trade protocol," she says.

As late as Thursday, Environment Minister Tom McMillan confirmed that the U.S. has been trying hard to cripple the negotiations.

The U.S. has made proposals which could delay the agreement from taking effect indefinitely, which McMillan and scientific experts fear could endanger the very future of the world.

The destruction of the earth's ozone layer is "a planetary time bomb", McMillan says. There is evidence to suggest that he is right, and that the bomb is ticking:

* Scientists have found a huge hole, the size of the U.S. and believed to be growing larger, in the ozone layer over Antarctica.

* Just last week, Canadian experts reported sighting a hole over the Arctic. It is not as big as the southern hole, but it tends to shift during the winter months.

* The holes are only the most dramatic evidence of a worldwide decrease in ozone, with measurements over Toronto showing a loss of up to 4 per cent since 1975.

* Losses of ozone could lead to skin cancers, possible damage to the human immune system, eye cataracts, crop losses and damage to fisheries.

* A 1 per cent boost in ultraviolet radiation due to ozone losses could lead to a 5 per cent increase in the skin cancer rate.

* The CFCs which cause the ozone problem are also linked to the "greenhouse effect," a worldwide trend toward warmer temperatures that scientists fear may eventually trigger huge floods and droughts.

* Because of the buildup and continuing use of CFCs, the problem will continue even if a strong agreement is signed.

* The deal now being hatched may not cover related materials known as halons, used in fire extinguishers and by the military - an exclusion which could wipe out most gains offered by the agreement.

* The ozone problem probably will get worse before it gets better; CFCs are nearly indestructible, yet they have been around for 59 years, and their true impact may not be felt until the next century.

In terms of human scale, it seems remarkable that something like ozone can generate such diplomatic attention - or be so important to life. It accounts for only 3 parts per 10 million of the atmosphere. About 90 per cent of it is in the upper part of the sky. If compressed to ground level pressure, it would form a layer only 3 millimetres thick. And it is made of oxygen.

It is a bluish, stinky, explosive gas that is formed when an oxygen molecule, made up of two atoms, is heated and breaks apart. To form ozone, the two atoms bond together with a third. It is an unstable mix which exists in a delicate balance with oxygen and the sun. Ozone is always being transformed when the three-atom molecules absorb ultraviolet rays and get bumped by stray oxygen atoms, which recreate new sets of two-atom oxygen.

The CFCs upset this balance because of the very qualities that make them attractive to industry. They are stable, they don't burn and they are non-toxic. These qualities mean they last for decades. Scientists believe that most of the CFCs that have been manufactured since 1928 are still floating around in the heavens.

The materials slowly drift upward, where the sun's heat frees the chlorine atoms they contain. Chlorine eats ozone; federal experts say that one chlorine atom can destroy up to 10,000 ozone molecules.

The problem they create used to be associated with aerosol spray cans, and it was all but forgotten in the mid-1970s, when Canada, the U.S. and Scandinavian countries restricted CFC use in such products. The release of CFCs dropped, but it grew again in the 1980s, particularly as the computer and electronics industries found new uses for the material.

The chemical industry has strongly resisted tough CFC regulations.

The U.S. is still said to be pushing hard to have this week's agreement contain provisions which would more or less amount to a veto, with the strongest pressure coming from the White House.

See related story page B4

Graphic

AP chart (Carpenter) indicating how pollutants break through ozone layer

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